

Appl. No. 09/706,926
Amdt. dated April 21, 2010
Reply to office action of December 28, 2009

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (previously presented): A method for representing cartographic data in a computer-based system, comprising:

providing a cartographic database containing a sequence of latitude and longitude data points indicating locations along a geographic feature, wherein the sequence of latitude and longitude data points provide a data point representation of the geographic feature;

using the latitude and longitude data points to generate a parameterized function representing the geographic feature;

computing a plurality of wavelet coefficients from said parameterized function representing the geographic feature, wherein said wavelet coefficients obtained with a wavelet, wherein said wavelet being one of a family of functions having a form

$\psi_{ab}(x) = |a|^{-1/2} \psi\left(\frac{x-b}{a}\right)$, wherein $\psi_{ab}(x)$ is called a mother wavelet, a is called a dilation

parameter, b is called a translation parameter, and x is an independent variable, wherein said computing the wavelet coefficients includes applying a wavelet transform to said parameterized function defined by the data points representing the geographic feature;

assigning each of the computed wavelet coefficients to at least one of a plurality of display scales for a map display;

indexing the wavelet coefficients by the assigned display scales for the map display; and

after said step of computing, storing the wavelet coefficients in a computer-usable database on a physical storage medium to provide a wavelet-based representation of the geographic feature, wherein the wavelet-based representation has a smaller data size than the data point representation of the geographic feature.

Claim 2 (canceled)

Claim 3 (previously presented): The method of claim 1, wherein the data points include altitude.

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Claim 4 (original): The method of claim 1, wherein the geographic feature is the boundary of a feature selected from the group consisting of a road, waterway, building, park, lake, railroad track, and airport.

Claim 5 (canceled)

Claim 6 (previously presented): The method of claim 1, wherein the step of computing the wavelet coefficients includes:

computing the wavelet coefficients by performing a least-squares fit.

Claim 7 (previously presented): The method of claim 1, wherein the wavelet coefficients are computed using a semi-discrete orthonormal wavelet transform.

Claim 8 (currently amended): A method of displaying on a computer output device a representation of a geographic feature, comprising:

identifying a display scale for displaying the representation of the geographic feature, wherein the display scale is one of several display scale levels useable for a zooming operation of a map display;

retrieving from a computer-usable database a plurality of wavelet coefficients associated with the geographic feature at the identified display scale, wherein a wavelet being one of a family of functions having a form $\psi_{ab}(x) = |a|^{-1/2} \psi\left(\frac{x-b}{a}\right)$, wherein $\psi_{ab}(x)$ is called a mother wavelet, a is called a dilation parameter, b is called a translation parameter, and x is an independent variable, the wavelet coefficients being derived from a plurality of latitude and longitude data points specifying geographic locations on the geographic feature, wherein the plurality of latitude and longitude data points provide a data point representation of the geographic feature, wherein the derived wavelet coefficients provide a wavelet-based representation of the geographic feature, wherein the wavelet-based representation has a smaller data size than the data point representation of the geographic feature, wherein each of the wavelet coefficients are assigned to at least one of the of display scale levels;

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generating a parameterized function representing the geographic feature at the display scale using the retrieved wavelet coefficients; and

displaying a line on the computer output device corresponding to the parameterized function representing the geographic feature at the display scale.

Claim 9 (previously presented): The method of claim 8, further comprising:

performing the zooming operation to display another representation of said geographic feature at a different scale level by retrieving the wavelet coefficients associated with the geographic feature at the different display scale.

Claim 10 (original): The method of claim 8, wherein the geographic feature is selected from the group consisting of a road, waterway, building, park, lake, railroad track, and airport.

Claims 11-27 (canceled)